

# Digital Health Technologies Assessment Based on Patient-Reported Outcome Measures (PROMs): Virtual Reality (VR) in the Treatment of Specific Phobias

HTA112

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## INTRODUCTION

**Specific phobias** are characterized by marked and excessive fear or anxiety, accompanied by avoidance behaviors.

**In vivo exposure therapy** is the standard treatment, but **imaginal exposure therapy** is also used. However, confronting the stimulus in real life or through imagination presents limitations.

**Virtual reality exposure therapy (VRET)** could help to overcome limitations of **traditional therapies** by offering a controlled, safe, and customizable exposure, improving accessibility.

## OBJECTIVES

This study aimed to:

- evaluate the efficacy of VR-based exposure therapy compared to traditional methods (in vivo or imaginal) for treating specific phobias;
- identify the standardized and validated Patient-Reported Outcome Measures (PROMs) used to assess the efficacy of VR-based treatments for specific phobias.

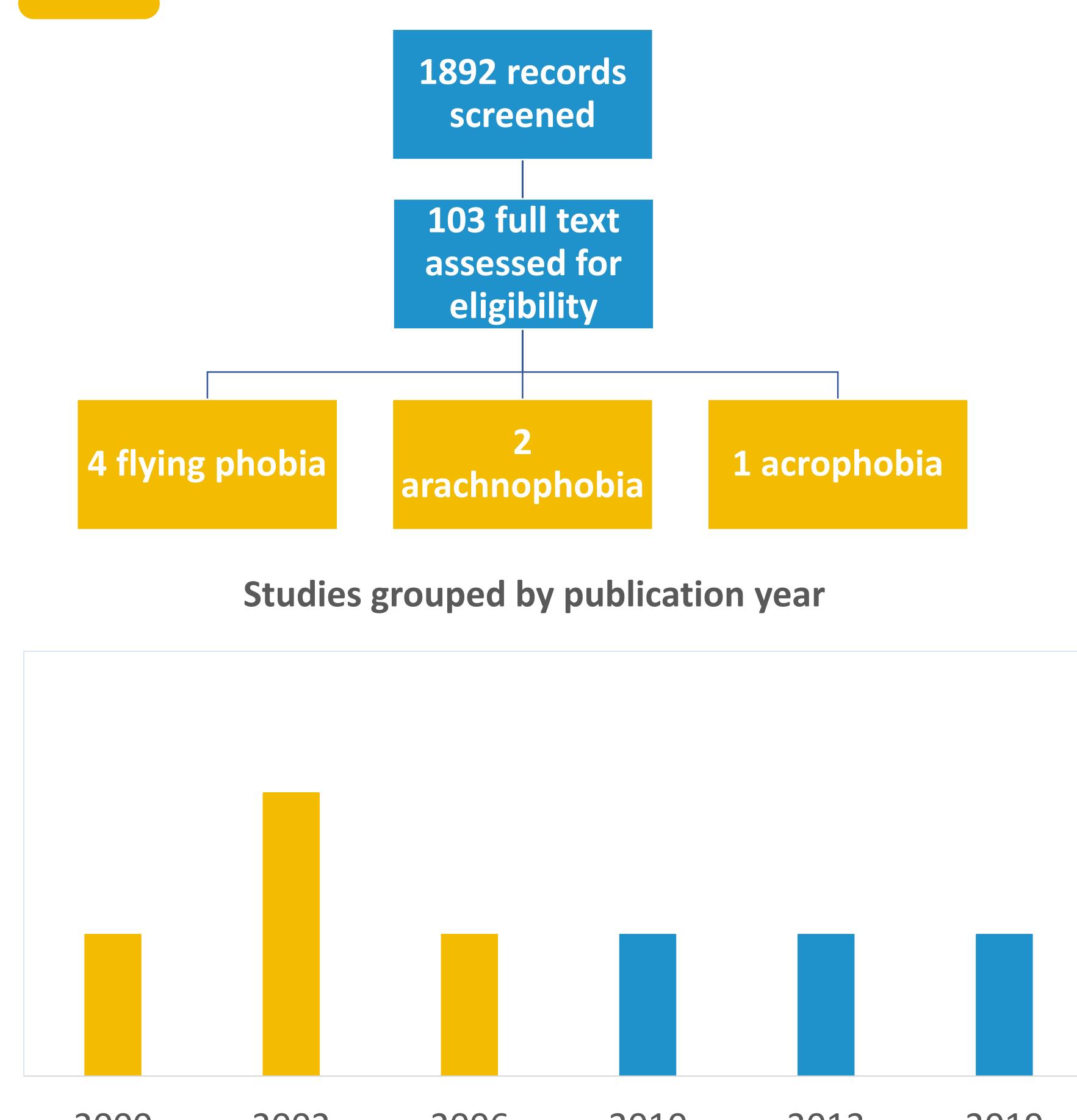
## METHOD

A systematic review was conducted following PRISMA guidelines and the following PICOD:

Population	Specific phobia patients
Intervention	VR exposure therapy
Comparison	<i>in vivo</i> or imaginal exposure therapy
Outcome	Patient-reported outcome for fear/anxiety
Design	RCT

A meta-analysis using **standardized mean differences** and a **random-effects model** was conducted to **compare** values of **scales** for specific phobia. **One scale** (the most frequently used) was selected **per study** for the comparison.

## RESULTS



Seven studies were identified. Among them, two published their follow-up in different publications.

Four studies (yellow) were published between 2000 and 2006, with the remaining studies published in 2010, 2013, and 2019.

Flying phobia scales	Arachnophobia scales	Acrophobia scales	General scales
• FFQ	• FSQ	• AQ	• GAD-7
• FFS	• SBQ	• ATHQ	• SUDS
• DEFAS	• SPQ		• STAI
• FFI			• VR scenario sheet
• QAF			

Among the included studies, more than **ten self-reported scales** were used to assess fear/anxiety in **specific phobias**. In addition, **four non-specific self-reported scales** were also used to assess fear/anxiety.

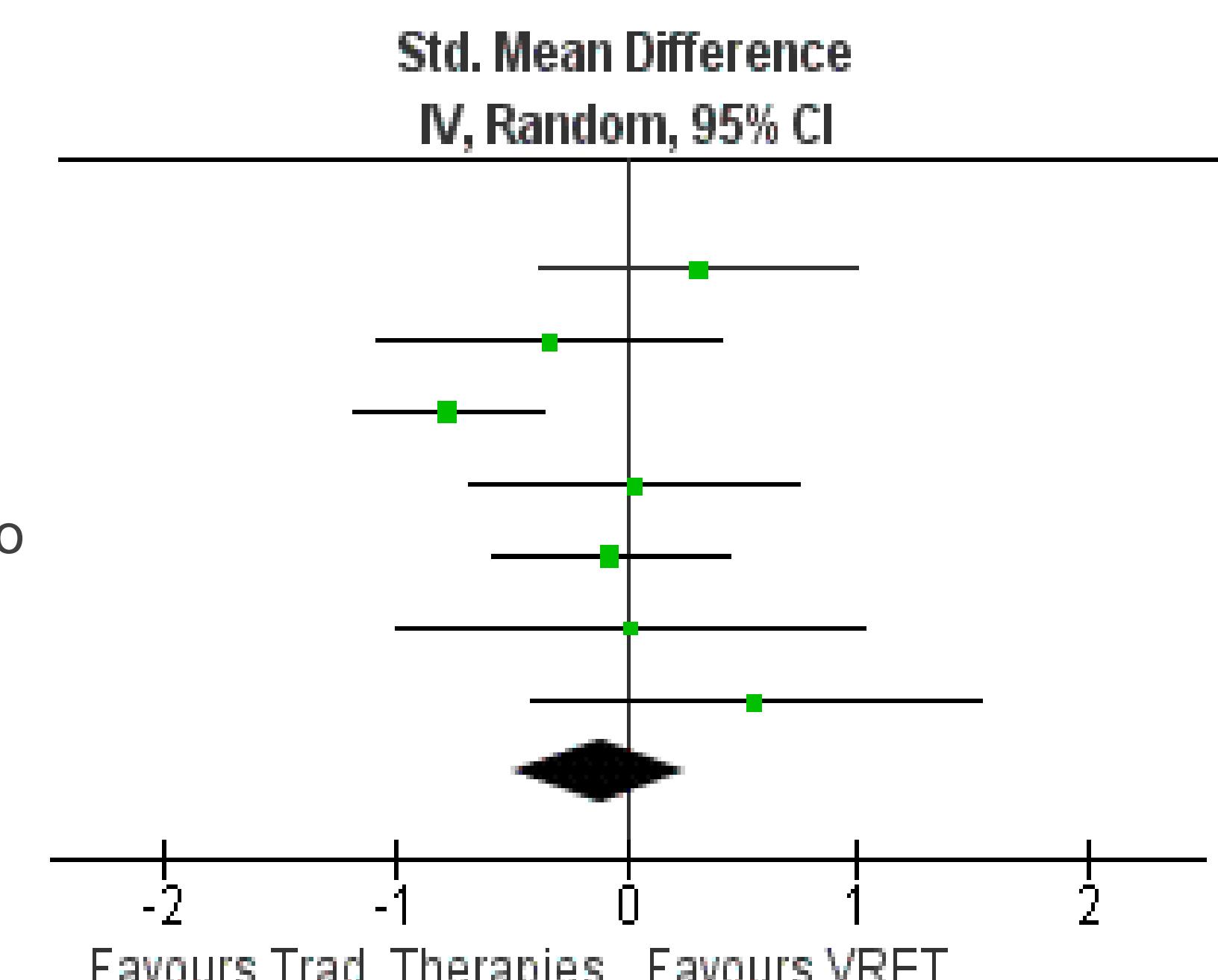
Not all studies used the same scales to assess the specific phobia.

### Flying phobia:

- three studies used FFI, QAF
- one study used FFQ, FS, DEFAS

### Arachnophobia:

- both studies used FSQ
- one used SBQ, the other used SPQ



There are **no differences between traditional therapies and VRET** assessed up to two weeks from treatment ( $p=0.54$ ).

Scales used for the meta-analysis are bold in the table.

Heterogeneity:  $I^2 = 53\%$

## CONCLUSIONS

- The body of **evidence** is based in **older publications**. Among the seven studies reviewed, four were published in or before 2006.
- Each phobia type was assessed using its own fear/anxiety questionnaires. In addition, **not all studies use the same instruments** to assess fear/anxiety in the specific phobia.
- Meta-analysis revealed **no statistically significant differences among treatments**. Virtual Reality Exposure Therapy (VRET) may be equivalent in efficacy to traditional exposure-based therapies. However, **methodological limitations** and **heterogeneity** were identified.
- More **studies are needed** to explore the potential advantages in terms of **accessibility, patient engagement, and cost-effectiveness**. Future research should aim to **standardize outcome measures** to improve methodological consistency to strengthen the evidence base.

## REFERENCES



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